



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,427	06/25/2003	Wen-Chien D. Hsiao	SJO920000097US1	6316
28875	7590	02/24/2006	EXAMINER	
Zilka-Kotab, PC			RENNER, CRAIG A	
P.O. BOX 721120			ART UNIT	
SAN JOSE, CA 95172-1120			PAPER NUMBER	

2652

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/606,427

Applicant(s)

HSIAO ET AL.

Examiner

Craig A. Renner

Art Unit

2652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 9-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,7 and 8 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 31 January 2006 has been entered.

### ***Election/Restrictions***

2. Claims 9-13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to one or more non-elected inventions/species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 10 March 2005.

3. Claims 14-16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to one or more non-elected inventions/species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 29 August 2005.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Wu et al. (US 6,239,948).

Wu teaches a magnetic write head comprising a first magnetic layer (12 and/or 16) having a first width; a second magnetic layer (20) having a second width; a non magnetic layer (18) separating at least a portion of the first magnetic layer from the second magnetic layer (as shown in FIG. 3, for instance); a third magnetic layer (26) contacting the second magnetic layer, the third magnetic layer having a third width greater than the second width of the second magnetic layer (as shown in FIG. 3, for instance); and an electrically conductive coil (28) disposed between the first and third magnetic layers along a coil-registry location (immediately above 28) remote from an air bearing surface of the third magnetic layer (as shown in FIG. 5, for instance), wherein the third magnetic layer is nonuniformly thick (as shown in FIG. 5, for instance) such that a thickness of a third pole of the third magnetic layer at the air bearing surface thereof is less than a thickness of the third magnetic layer at all points along a length of the coil-registry location (as shown in FIG. 5, for instance) [as per claim 1]; wherein a portion of the electrically conductive coil (28) passes between the first magnetic layer

and the third magnetic layer (as shown in FIG. 5, for instance), the electrically conductive coil having a substantially planar first surface that is coplanar with a plane defined by an interface between the second magnetic layer and the third magnetic layer (as shown in FIG. 5, for instance) [as per claim 2]; wherein the magnetic head further comprises non-magnetic, electrically insulative material (includes 30, for instance) separating the electrically conductive coil from the first, second, and third magnetic layers (as shown in FIG. 5, for instance) [as per claim 3]; and wherein the first and second layers are magnetically connected with one another in a back gap region (as shown in FIG. 5, for instance) [as per claim 4]. As the claims are directed to a "magnetic write head", per se, the method limitation appearing in lines 16-17 of claim 1 can only be accorded weight to the extent that it affects the structure of the completed magnetic write head. Note that "[d]etermination of patentability in 'product-by-process' claims is based on product itself, even though such claims are limited and defined by process [i.e., "wherein material has been removed from the third pole for defining the thickness thereof", for instance], and thus product in such claim is unpatentable if it is the same as, or obvious form, product of prior art, even if prior product was made by a different process", *In re Thorpe, et al.*, 227 USPQ 964 (CAFC 1985). Furthermore, note that a "[p]roduct-by-process claim, although reciting subject matter of claim in terms of how it is made [i.e., "wherein material has been removed from the third pole for defining the thickness thereof", for instance], is still product claim; it is patentability of product claimed and not recited process steps that must be established, in spite of fact that

claim may recite only process limitations", *In re Hirao and Sato*, 190 USPQ 685 (CCPA 1976).

6. Claims 1, 3-5 and 7-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al. (US 5,652,687).

With respect to claims 1 and 3-4, Chen teaches a magnetic write head (FIGS. 20 and 22, for instance) comprising a first magnetic layer (102) having a first width; a second magnetic layer (P2T) having a second width; a non magnetic layer (G) separating at least a portion of the first magnetic layer from the second magnetic layer; a third magnetic layer (104) contacting the second magnetic layer (as shown in FIGS. 20 and 22, for instance), the third magnetic layer having a third width greater than the second width of the second magnetic layer (as shown in FIG. 20, for instance); and an electrically conductive coil (110) disposed between the first and third magnetic layers along a coil-registry location (immediately above 110) remote from an air bearing surface of the third magnetic layer (as shown in FIG. 22, for instance), wherein the third magnetic layer is nonuniformly thick (as shown in FIG. 22, for instance) such that a thickness of a third pole (P2) of the third magnetic layer at the air bearing surface thereof is less than a thickness of the third magnetic layer at all points along a length of the coil-registry location (as shown in FIG. 22, for instance) [as per claim 1]; wherein the magnetic head further comprises non-magnetic, electrically insulative material (includes  $I_1$  and  $I_2$ , for instance) separating the electrically conductive coil from the first, second, and third magnetic layers (as shown in FIG. 22, for instance) [as per claim 3]; and

wherein the first and second layers are magnetically connected with one another in a back gap (BG) region (as shown in FIG. 22, for instance) [as per claim 4]. As the claims are directed to a "magnetic write head", per se, the method limitation appearing in lines 16-17 of claim 1 can only be accorded weight to the extent that it affects the structure of the completed magnetic write head. Note that "[d]etermination of patentability in 'product-by-process' claims is based on product itself, even though such claims are limited and defined by process [i.e., "wherein material has been removed from the third pole for defining the thickness thereof", for instance], and thus product in such claim is unpatentable if it is the same as, or obvious form, product of prior art, even if prior product was made by a different process." See *In re Thorpe, et al.*, supra.

Furthermore, note that a "[p]roduct-by-process claim, although reciting subject matter of claim in terms of how it is made [i.e., "wherein material has been removed from the third pole for defining the thickness thereof", for instance], is still product claim; it is patentability of product claimed and not recited process steps that must be established, in spite of fact that claim may recite only process limitations." See *In re Hirao and Sato*, supra.

With respect to claims 5 and 7-8, Chen teaches a magnetic head (FIGS. 20 and 22, for instance) comprising a magnetic write structure (200) having an ABS end (ABS) thereof, the magnetic write structure comprising a first magnetic layer (102) having a first pole (P1) at the ABS end thereof; a second magnetic layer having a second pole (P2T) at the ABS end thereof, the second pole being spaced apart from the first pole (as shown in FIG. 22, for instance) and having a second-pole width (as shown in FIG. 20,

Art Unit: 2652

for instance); a third magnetic layer (104) formed independently of the second pole (as shown in FIGS. 20 and 22, for instance) and having a third pole (P2) at the ABS end thereof, the third pole contacting the second pole (as shown in FIG. 22, for instance) and having a third-pole width greater than the second-pole width (as shown in FIG. 20, for instance) so that the second magnetic layer and the third magnetic layer taken together have a T-shape when viewed from the ABS end (as shown in FIG. 20, for instance); and an inductive coil (110) disposed adjacent to and in registry with the third magnetic layer at a coil-registry location (immediately above 110) remote from the third pole (as shown in FIG. 22, for instance), a plane of the third magnetic layer defined between the third pole and a buried portion of the third magnetic layer (i.e., the plane is an inclined plane defined between the third pole and the buried portion of the third magnetic layer) passing through the inductive coil (i.e., at a slant when viewed in FIG. 22, for instance), wherein the third magnetic layer is nonuniformly thick (as shown in FIG. 22, for instance) such that a thickness of the third pole is less than a thickness of the third magnetic layer along all points of the coil-registry location (as shown in FIG. 22, for instance) [as per claim 5]; wherein the magnetic head further includes a gap insulator (G) disposed between the first pole and the second pole (as shown in FIG. 22, for instance) [as per claim 7]; and wherein the magnetic head further includes electrical insulation (includes  $I_1$  and  $I_2$ , for instance) lying between the inductive coil and the adjacent first magnetic layer and third magnetic layer (as shown in FIG. 22, for instance) [as per claim 8]. As the claims are directed to a "magnetic head", per se, the method limitation appearing in lines 17-18 of claim 5 can only be accorded weight to the extent



that it affects the structure of the completed magnetic head. Note that “[d]etermination of patentability in ‘product-by-process’ claims is based on product itself, even though such claims are limited and defined by process [i.e., “wherein material has been removed from the third pole for defining the thickness thereof”, for instance], and thus product in such claim is unpatentable if it is the same as, or obvious form, product of prior art, even if prior product was made by a different process.” See *In re Thorpe, et al.*, supra. Furthermore, note that a “[p]roduct-by-process claim, although reciting subject matter of claim in terms of how it is made [i.e., “wherein material has been removed from the third pole for defining the thickness thereof”, for instance], is still product claim; it is patentability of product claimed and not recited process steps that must be established, in spite of fact that claim may recite only process limitations.” See *In re Hirao and Sato*, supra.

#### ***Allowable Subject Matter***

7. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

8. Applicant's arguments filed 21 January 2006 have been fully considered but they are not persuasive.

The applicant argues that "Wu does not remove material from the pole of the upper layer (26)... Nowhere does Wu teach or suggest that material is removed from the upper layer of the ABS." This argument, however, is not found to be persuasive for the following: As the claims are directed to a "magnetic write head", per se, the method limitation appearing in lines 16-17 of claim 1 can only be accorded weight to the extent that it affects the structure of the completed magnetic write head. Note that "[d]etermination of patentability in 'product-by-process' claims is based on product itself, even though such claims are limited and defined by process [i.e., "wherein material has been removed from the third pole for defining the thickness thereof", for instance], and thus product in such claim is unpatentable if it is the same as, or obvious form, product of prior art, even if prior product was made by a different process." See *In re Thorpe, et al.*, supra. Furthermore, note that a "[p]roduct-by-process claim, although reciting subject matter of claim in terms of how it is made [i.e., "wherein material has been removed from the third pole for defining the thickness thereof", for instance], is still product claim; it is patentability of product claimed and not recited process steps that must be established, in spite of fact that claim may recite only process limitations." See *In re Hirao and Sato*, supra. The magnetic write head of Wu is no different structurally from that set forth in the claims.

The applicant further contends that "Chen does not remove material from the pole of the upper layer... Nowhere does Chen teach or suggest that material is removed from the upper layer of the ABS." This argument, however, is not found to be persuasive for the following: As the claims are directed to a "magnetic write

Art Unit: 2652

head"/"magnetic head", per se, the method limitations appearing in lines 16-17 of claim 1 and lines 17-18 of claim 5 can only be accorded weight to the extent that they affect the structure of the completed magnetic head. Note that "[d]etermination of patentability in 'product-by-process' claims is based on product itself, even though such claims are limited and defined by process [i.e., "wherein material has been removed from the third pole for defining the thickness thereof", for instance], and thus product in such claim is unpatentable if it is the same as, or obvious form, product of prior art, even if prior product was made by a different process." See *In re Thorpe, et al.*, supra.

Furthermore, note that a "[p]roduct-by-process claim, although reciting subject matter of claim in terms of how it is made [i.e., "wherein material has been removed from the third pole for defining the thickness thereof", for instance], is still product claim; it is patentability of product claimed and not recited process steps that must be established, in spite of fact that claim may recite only process limitations." See *In re Hirao and Sato*, supra. The magnetic head of Chen is no different structurally from that set forth in the claims.

### ***Conclusion***

9. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued

examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b).


Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (571) 272-7580. The examiner can normally be reached on Tuesday-Friday 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Craig A. Renner  
Primary Examiner  
Art Unit 2652

CAR